

ABSTRACT OF THE DISCLOSURE

A method for forming a minute pattern includes forming a mask layer on an object being patterned. The mask layer is patterned to form a first mask pattern having a first width larger than a predetermined width. The first mask pattern is thermally treated to form a second mask pattern having a second width smaller than the first width. A polymer layer is formed on the second mask pattern. The polymer layer reacts with the second mask pattern to form a hardened layer on a boundary surface between the polymer layer and the second mask pattern, thereby forming a third mask pattern having a third width substantially identical to the predetermined width. The limits of the present photolithography equipment are overcome. Also, a semiconductor device having a CD of below about 100nm is manufactured.

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